ABSTRACT OF THE DISCLOSURE

A multi-level pulse width modulation (multi-level PWM) technique uses multiple voltage levels and/or multiple output channels to obtain improved resolution (also referred to as dynamic range) over ordinary PWM-based digital systems, in particular digital audio systems. A digital audio signal is converted to either (1) an N-level PWM signal which is output to a single channel including a filter and loudspeaker, (2) N components of an N-level PWM signal output to N corresponding channels, or (3) some number of multi-level signals output to multiple channels. The digital audio signal can also be divided into different frequency bands to be processed separately and output to different sets of loudspeakers, wherein fewer low frequency loudspeakers can be used than high frequency loudspeakers to produce equal effective resolution for the output of all frequency bands. The multi-level PWM technique can also be adapted to control the output of other types of PWM-based systems when greater resolution is desired.

291454-1

ATTORNEY DOCKET NO. HLEE-001XX
WEINGARTEN, SCHURGIN,
GAGNEBIN & LEBOVICI LLP
TEL. (617) 542-2290
FAX. (617) 451-0313